

Claims

1. A catheter, provided with an elongated body with an electrically conductive first end, wherein through said body at least one live wire extends which is connected to said first end and a channel for feeding a cooling fluid through said body, which channel is provided, in or near said first end, with at least one outlet opening and wherein, in said first end, a temperature sensor has been arranged, while said channel is thermally insulated from said first end.
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2. A catheter according to claim 1, wherein said at least one outflow opening is provided in said first end.
- 10 3. A catheter according to claim 1 or 2, wherein said channel has a longitudinal direction and is provided with a series of outlet openings, which outlet openings are arranged such that during use, cooling fluid supplied through said channel flows out through said outlet openings in an outflow direction which included an angle with said longitudinal direction.
- 15 4. A catheter according to claim 1 or 2, wherein the outlet openings are provided with a thermally insulating inside casing.
5. A catheter according to any one of the preceding claims, wherein at least one said outlet opening is provided in said body, adjacent said first end.
6. A catheter according to any one of the preceding claims, wherein
20 said first end is attached to said body, wherein said temperature sensor is provided in said first end, at a distance from an interface formed between said body and said first end.
7. A catheter according to any one of the preceding claims, wherein the outlet openings are designed such that cooling fluid flowing therefrom during
25 use flows away from said first end.
8. A catheter according to any one of the preceding claims, wherein said first end has at least one metal outside.

9. A method for thermal treatment, in particular ablation, wherein a catheter with an electrically conductive first end is provided in a body cavity, with said first end near or, preferably, against a wall of said body cavity, while at a distance from said first end a complementary electrically conductive element is arranged, preferably outside the body in which said cavity is located, whereupon an electric current is generated between said first end and said conductive element, such that said wall is heated, whereupon, adjacent said first end, a cooling fluid is dispensed, while the temperature of said first end is measured and is regulated, while direct cooling of said first end from the inside thereof by said cooling fluid is prevented.

10 10. A method according to claim 9, wherein said cooling fluid, through a channel in said catheter, is supplied and dispensed in said protein containing liquid, while said cooling fluid in said catheter is separated from at least said first end through thermal insulation.

15 11. A method according to claim 9 or 10, wherein the cooling fluid is dispensed in a protein containing liquid such as blood around said first end such that said protein containing liquid is cooled with the aid of said cooling fluid adjacent an interface between said protein containing liquid and said wall and near the outside of said first end and is kept at a temperature below the coagulation temperature of said protein containing liquid.

20 12. A method according to any one of claims 9 – 11, wherein said ablation is performed in a body cavity wherein as liquid, blood is present, while the temperature of said blood is kept at a temperature below approximately 55°C and the temperature of said first end is regulated such that it remains below approximately 65°C.

25 13. A method according to any one of claim 9 – 12, wherein as cooling fluid a physiological salt solution is used, which is introduced into said protein containing liquid such that around said first end, turbulence occurs in said protein containing liquid.